Microfabricated Low-Loss Microwave Switch Integration Technology, Phase I

Completed Technology Project (2010 - 2010)

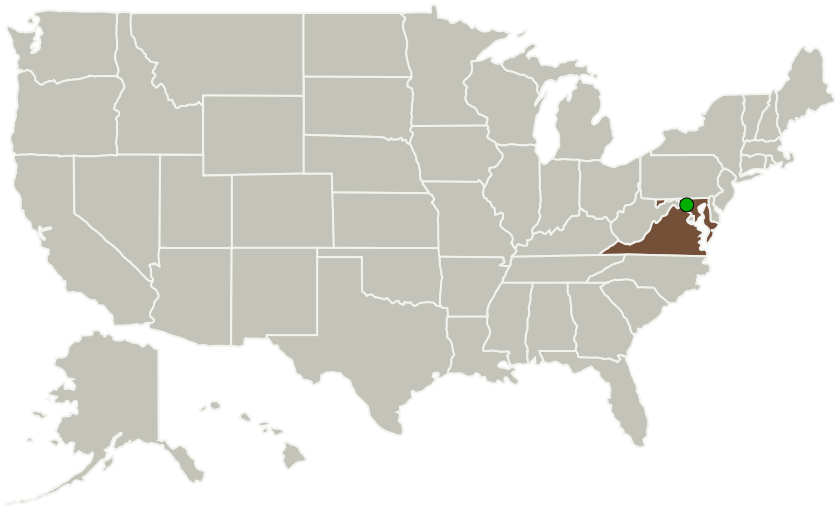
Project Introduction

Nuvotronics has developed and optimized the PolyStrata

TM

process for the fabrication of intricate microwave and millimeter-wave devices. These devices have primarily been rectangular coaxial transmission lines, although rectangular waveguide and other structures have also been demonstrated. Intricate devices have been demonstrated with insertion loss 5 to 10 times lower than traditional planar circuits; isolation better than 60dB for lines that share separating walls; multiple levels of densely-packed coaxial circuits; and low-parasitic attachment to active devices and traditional circuit boards. In this Phase I project, Nuvotronics will deseign microfabricated MEMs-based switches on the Polystrata platform. Nuvotronics will explore whether piezoelectric-based or magnetic-based actuation provides the best performance for millimeter-wave radiometry applications. The devices will have size and cost advantages, higher power handling capability, and lower loss than achievable with the commonly available wafer-based switches of today.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Nuvotronics, Inc	Lead Organization	Industry	Radford, Virginia
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Virginia

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Summary: Microfabricated Low-Loss Microwave Switch Integration Technology, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/139218)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Nuvotronics, Inc

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

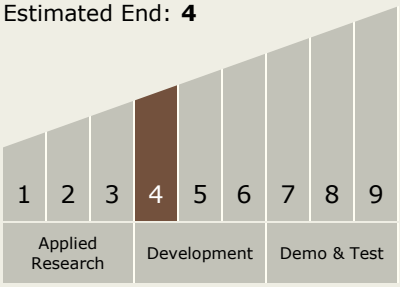
Carlos Torrez

Principal Investigator:

Ken Vanhille

Technology Maturity (TRL)

Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System